## CLAIMS

What is claimed is:

1. An apparatus for precisely attaching a thin-film head to a beam, comprising:

(a) a base;

(b) a head mounting assembly including:

(i) a pair of stanchions fixedly mounted on a first side of the base,

(ii) a pivot arm having a first end pivotally coupled to the stanchions about an axis parallel with an x-axis and a second end with a handle and a head holder coupled thereto, and

(iii) a vacuum assembly coupled to the head holder for securing a head thereto utilizing a vacuum, the head holder including a plate screwably coupled to the second end of the pivot arm for allowing the placement of a shim between the plate and the second end of the pivot arm for allowing adjustment of the head in a $\theta z$ direction;

(c) a beam mounting assembly including:

(i) a support member having a first portion with a rectangular configuration with a first height fixedly mounted on a second side of the base along an axis parallel with the x-axis and a second portion with a rectangular

configuration with a second height greater than the first height fixedly mounted to the base adjacent to the first portion of the support member,

(ii) a beam holder positioned on a top surface of the second portion of the support member, the beam holder including a pair of short end edges and a pair of long side edges for receiving a beam thereon, the beam holder having an x-axis stopper positioned at a first one of the short end edges for abutting the beam when positioned on the beam holder, the beam holder slidably coupled to the top surface of the second portion of the support member in a direction parallel to the x-axis for allowing adjustment of the beam along the x-axis,

(ii) an intermediate member with a size and shape substantially similar to the first portion of the support member for being positioned on top of the first portion of the support member along a side of the second portion of the support member, the intermediate member including a pair of smooth holes formed therein in parallel with a y-axis for loosely receiving a pair of screws which are in turn screwably coupled to a side of the second portion with at least one shim therebetween for allowing adjustment of the beam along the y-axis and in a $\theta$x direction, the intermediate member including a pair of threaded holes formed therein along an axis parallel with a z-axis for screwably receiving a pair of screws which abut a top of the first portion of the support member thus allowing adjustment of the beam along the y-axis and in a $\theta$y direction, and

(iii) an upper member including a lower slider segment with a rectangular configuration slidably coupled to a top of the intermediate member along an axis parallel with the y-axis, and an upper pivoting segment pivotally coupled at a first side thereof to the lower slider segment about an axis parallel with the z-axis for allowing marco adjustment of the beam along the y-axis, the upper pivoting segment having a second side defining a y-axis stopper for abutting the beam along a first one of the long side edges of the beam holder, a spring coupled between the upper pivoting segment and the lower slider segment for biasing the second side of the upper pivoting segment away from the beam and a screw screwably coupled to an arm extending from the lower slider segment for abutting the upper pivoting segment to determine an extent to which the upper pivoting segment pivots toward the beam thus allowing micro adjustment of the beam along the y-axis; and

(d) a pair of stabilizers each including a first end having a spring-biased pin mounted therein, an intermediate portion pivotally coupled to the base along an axis parallel with the z-axis, and a second end slidably situated on a top surface of the base for allowing the second end to be fixed with respect to the base via a clamp, the stabilizers including a first stabilizer with the pin thereof adapted for abutting the beam along a second one of the long side edges of the beam holder and a second stabilizer with the pin thereof adapted for abutting the beam along a second one of the short end edges of the beam holder;

(e) wherein the head mounting assembly is adapted for abutting the head secured in the head holder with the beam secured in the beam holder upon the pivoting of the head mounting assembly, whereby the beam and head are precisely aligned along six (6) degrees of freedom.

2. An apparatus for precisely attaching a thin-film head to a beam, comprising:

(a) a base;

(b) a head mounting assembly coupled to the base and including a head holder for holding a head; and

(c) a beam mounting assembly coupled to the base and including a beam holder for holding a beam;

(d) wherein the relative position of the head holder and beam holder is configurable along an x-axis, y-axis, and z-axis and further configurable in a $\theta$x direction, $\theta$y direction, and $\theta$z direction so that the head is precisely attached to the beam.

3. The apparatus as recited in claim 2, wherein the head mounting assembly is pivotally coupled to the base for selectively attaching the head to the beam.

4. The apparatus as recited in claim 2, wherein the head holder is adjustably attached to the head mounting assembly for allowing adjustment of the head holder in the $\theta$z direction relative to the beam holder.

5. The apparatus as recited in claim 4, wherein the head holder is adjustable utilizing a shim.

6. The apparatus as recited in claim 2, wherein the beam mounting assembly includes a first member adjustably coupled with respect to the base for allowing adjustment of the beam holder along the y-axis and in the $\theta$x direction relative to the head holder.

7. The apparatus as recited in claim 6, wherein the first member is adjustable utilizing a shim and at least one screw.

8. The apparatus as recited in claim 6, wherein the beam mounting assembly includes a second member pivotally coupled to the first member for allowing adjustment of the beam holder along the y-axis relative to the head holder.

9. The apparatus as recited in claim 8, wherein the second member is biased away from the beam holder utilizing a spring, and the extent to which the second member is biased is controlled utilizing a screw.

10. The apparatus as recited in claim 6, wherein the beam mounting assembly includes a second member pivotally coupled to the first member for allowing adjustment of the beam holder along the y-axis relative to the head holder.

11. The apparatus as recited in claim 2, wherein the beam holder is slidably coupled with respect to the base for allowing adjustment of the beam holder along the x-axis relative to the head holder.

12. The apparatus as recited in claim 2, wherein the beam mounting assembly includes a x-stop and a y-stop abutting the beam.

13. The apparatus as recited in claim 12, and further comprising a pair of stabilizers for forcing the beam against the x-stop and the y-stop.

14. The apparatus as recited in claim 13, wherein the stabilizers are pivotally coupled to the base.

15. The apparatus as recited in claim 14, wherein the stabilizers are selectively clamped to the base.

16. The apparatus as recited in claim 14, wherein the stabilizers each include a spring-biased pin for engaging the beam.

17. A method for precisely attaching a thin-film head to a beam, comprising:

(a) adjusting the relative position of a head holder and a beam holder along an x-axis, y-axis, and z-axis and further in a $\theta$x direction, $\theta$y direction, and $\theta$z direction, wherein the head holder is a component of a head mounting assembly pivotally

coupled to a base and the beam holder is a component of a beam mounting assembly fixedly mounted to the base;

(b) attaching a head to the head holder of the head holder mounting assembly;

(c) attaching a beam to the beam holder of the beam mounting assembly; and

(d) pivoting the head holder relative to the beam holder for attaching the head to the beam.

18. A system for dicing a thin-film head on a wafer, comprising:

(a) a wafer including a plurality of magnetic heads formed therein and a plurality of closures formed thereon;

(b) a saw blade with a substantially thin circular configuration having a planar first face, a second face, and a serrated periphery, the saw blade having a first thickness and a first diameter; and

(c) a thickened portion with a substantially disk-shaped configuration integrally coupled to the first face of the saw, the thickened portion having a second thickness greater than the first thickness and a second diameter less than ½ the first diameter;

(d) wherein the thickened portion is adapted for maintaining a rigidity of the saw blade when separating the magnetic heads from the wafer such that the magnetic heads each have a planar operating surface.

19. An apparatus for dicing a thin-film head on a wafer, comprising:

(a) a saw blade including:

(i) an outer portion with a substantially circular configuration having a periphery and a first thickness, and

(ii) an inner portion with a second thickness greater than the first thickness of the outer portion;

(b) wherein the inner portion is adapted for maintaining a rigidity of the saw blade when separating magnetic heads from a wafer such that the magnetic heads each have a planar operating surface.

20. The apparatus as recited in claim 19, wherein the saw has a thin circular configuration having a first face with the inner portion protruding therefrom and a planar second face.

21. The apparatus as recited in claim 19, wherein the inner portion has a diameter less than a diameter of the outer portion.

22. The apparatus as recited in claim 19, wherein the inner portion has a diameter less than 1/2 of a diameter of the outer portion.

23. The apparatus as recited in claim 19, wherein the inner portion is integrally coupled to the outer portion.

24. The apparatus as recited in claim 19, wherein the saw blade is constructed from a rigid material.

25. The apparatus as recited in claim 19, wherein the periphery of the outer portion is serrated.

26. A method for dicing a thin-film head on a wafer, comprising:

(a) activating a saw blade including:

(i) an outer portion with a substantially circular configuration having a serrated periphery and a first thickness, and

(ii) an inner portion with a second thickness greater than the first thickness of the outer portion; and

(b) dicing a thin-film head on a wafer utilizing the saw blade;

(c) wherein the inner portion is adapted for maintaining a rigidity of the saw blade when separating magnetic heads from a wafer such that the magnetic heads each have a planar operating surface.

27. A magnetic head, comprising:

(a) a head body with a substantially rectangular configuration including a top face, a bottom face, a pair of elongated side faces, and a pair of short end faces;

(b) at least one transducer formed in communication with the top face of the head body;

(c) a closure with a substantially rectangular configuration having a length substantially equal to the head body, the closure coupled to a first one of the side faces of the head body coincident with the top face thereof; and

(d) a single groove formed in the top face of the head body and extending between the at least one transducer and a second one of the side faces, the single groove defined by a first surface positioned in a plane substantially parallel with the side faces and defined by edges coincident with the top face and the end faces, and a second surface positioned in a plane substantially parallel with the top and bottom faces and defined by edges coincident with the first surface, the end faces and the second side face;

(e) wherein the single groove is adapted for providing a discontinuity edge and controlling an overwrap angle of a tape sliding along the at least one transducer.

28. A magnetic head, comprising:

(a) a head body including a top face, a bottom face, a pair of elongated side faces, and a pair of short end faces;

(b) at least one transducer formed in communication with the top face of the head body; and

(c) a single groove formed in the top face of the head body and extending between the transducers and one of the side faces of the head body.

29. The magnetic head as recited in claim 28, and further comprising a closure coupled to a first one of the side faces of the head body coincident with the top face thereof.

30. The magnetic head as recited in claim 29, wherein the closure is equipped with a substantially rectangular configuration having a length substantially equal to the head body.

31. The magnetic head as recited in claim 30, wherein the groove is defined by a first surface positioned in a plane substantially parallel with the side faces of the head body.

32. The magnetic head as recited in claim 31, wherein the first surface is defined by edges coincident with the top face and the end faces of the head body.

33. The magnetic head as recited in claim 31, wherein the groove is further defined by a second surface positioned in a plane substantially parallel with the top and bottom faces of the head body.

34. The magnetic head as recited in claim 33, wherein the second surface of the groove is defined by edges coincident with the first surface, the end faces and the second one of the side faces of the head body.

35. The magnetic head as recited in claim 28, wherein the groove is adapted for providing a discontinuity edge and controlling an overwrap angle of a tape sliding along the at least one transducer.

36. A method for manufacturing a magnetic head, comprising:

(a) providing a head body including a top face, a bottom face, a pair of elongated side faces, and a pair of short end faces, wherein a transducer is formed in communication with the top face of the head body; and

(c) forming a single groove in the top face of the head body such that the single groove extends between the at least one transducer and one of the side faces of the head body.